

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A transparent substrate, comprising an antireflection coating on at least one of its faces, which is made of a thin-film multilayer (A) of dielectric material with alternately high and low refractive indexes, ~~characterized in that~~ wherein at least one of the layers of high refractive index comprises a mixed silicon zirconium nitride, the refractive index of at least one of the high-index layers being between 2.10 and 2.30, wherein the atomic percentage of zirconium within the high-index layer is such that Si/Zr is between 4.6 and 5.

Claims 2-3 (Cancelled).

Claim 4 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in that it which~~ comprises, in succession:

- a high-index first layer (1) having a refractive index  $n_1$  of between 2.1 and 2.3 and a geometrical thickness  $e_1$  of between 5 and 50 nm;
- a low-index second layer (2) having a refractive index  $n_2$  of between 1.35 and 1.65 and a geometrical thickness  $e_2$  of between 5 and 50 nm;
- a high-index third layer (3) having a refractive index  $n_3$  of between 2.1 and 2.3 and a geometrical thickness  $e_3$  of between 40 and 120 nm; and
- a low-index fourth layer (4) having a refractive index  $n_4$  of between 1.35 and 1.65 and a geometrical thickness  $e_4$  of between 40 and 120 nm.

Claim 5 (Currently Amended): The substrate as claimed in claim 4, ~~characterized in that~~ wherein the low-index second layer (2) and/or the low index fourth layer (4) are based on

U.S. application serial no. 10/567,901  
Reply to Official Action of June 24, 2008

silicon oxide, silicon oxynitride and/or silicon oxycarbide or on a mixed silicon aluminum oxide.

Claim 6 (Currently Amended): The substrate as claimed in claim 4, ~~characterized in that wherein~~ the high-index first layer (1) and/or the high-index third layer (3) consist of a superposition of several high-index layers, at least one of the layers comprising a mixed silicon zirconium nitride.

Claim 7 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in that its wherein~~ the light reflection on the side where it is provided with the thin-film multilayer is lowered by a minimum amount of 3 or 4% at normal incidence.

Claim 8 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in that wherein~~ the colorimetric response of its light reflection on the side where it is provided with the thin-film multilayer is such that the corresponding value of  $b^*$  in the  $(L^*, a^*, b^*)$  colorimetry system is negative, for a  $0^\circ$  angle of incidence.

Claim 9 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in that wherein~~ the colorimetric response of its light reflection on the side where it is provided with the thin-film multilayer is such that the variation in the parameters expressed in the  $(L^*, a^*, b^*)$  colorimetry system with angle of incidence varying between  $0^\circ$  and  $70^\circ$  is limited in absolute value to 10.

Claim 10 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in that wherein~~ the multilayer ~~uses~~ comprises at least one high-index layer based on a mixed

silicon zirconium nitride so that it has a very high mechanical durability, such that  $\Delta H$  in the Taber test is less than 4% after 650 revolutions.

Claim 11 (Currently Amended): Multiple glazing, comprising at least two substrates as claimed in claim 1, characterized in that wherein the two glass substrates [[(6)]] are joined together by ~~means of~~ a sheet [[(7)]] of thermoplastic material or by ~~means of~~ an intermediate seal in the case of a double glazing unit, said substrate [[(6)]] being provided on the opposite side from the join:

- either with an antireflection multilayer;
- or with a coating having another functionality,

of solar-protection, low-emissivity, antisoiling, antifogging, antirain, heating or electromagnetic shielding, wherein it being possible for said coating having optionally comprises another functionality to be on one of the faces of the substrates turned toward the thermoplastic joining sheet,

said substrate being provided on the joining side with a coating having electromagnetic wave shielding properties.

Claim 12 (Currently Amended): A transparent substrate provided with a thin-film multilayer comprising an alternation of n functional layers having reflection properties in the infrared and/or in solar radiation and n+1 coatings composed of one or more layers of dielectric material, in such a way that each functional layer is placed between two coatings, characterized in that at least one of the layers of dielectric material is based on a mixed silicon zirconium nitride, the Si/Zr atomic percentage ratio being between 4.6 and 5 and its refractive index being between 2.0 and 2.3.

Claim 13 (Currently Amended): The substrate as claimed in claim 12, characterized in that wherein the multilayer comprises a single functional layer placed between two coatings.

Claim 14 (Currently Amended): The substrate as claimed in claim 12, characterized in that wherein the multilayer comprises two functional layers alternating with three coatings.

Claim 15 (Currently Amended): The substrate as claimed in claim 12, characterized in that wherein the multilayer comprises three functional layers alternating with four coatings.

Claim 16 (Currently Amended): The substrate as claimed in claim 12, characterized in that wherein the functional layer is based on silver, a silver mixture, gold or palladium.

Claim 17 (Currently Amended): The substrate as claimed in claim 12, characterized in that it which comprises:

a first high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 10 and 40 nm;  
a first functional layer; and  
a second high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 15 and 40 nm.

Claim 18 (Currently Amended): The substrate as claimed in claim 12, characterized in that it which comprises:

a first high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 10 and 40 nm;

a first functional layer;

a second high-index dielectric material having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 5 and 70 nm;

a second functional layer; and

a third high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 10 and 40 nm.

Claim 19 (Currently Amended): The substrate as claimed in claim 12, ~~characterized~~ in that it which comprises:

a first high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 10 and 40 nm;

a first functional layer;

a second high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 5 and 70 nm;

a second functional layer;

a third high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 5 and 70 nm;

a third functional layer; and

a fourth high-index dielectric layer having a refractive index of between 2.1 and 2.3 and a geometrical thickness of between 10 and 40 nm.

Claim 20 (Currently Amended): The substrate as claimed in claim 19, ~~characterized~~  
~~in that~~ wherein the layers absorbent in the visible, positioned beneath at least one functional  
layer, are chosen to be based on a metal or a metal alloy, with a thickness of at least 1 nm.

Claim 21 (Currently Amended): The substrate as claimed in claim 19, ~~characterized~~  
~~in that~~ wherein the layers absorbent in the visible, positioned on top of at least one functional  
layer, are chosen to be based on a metal or a metal alloy, with a thickness of at least 1 nm.

Claim 22 (Currently Amended): The substrate as claimed in claim 12, ~~characterized~~  
~~in that it includes~~ which comprises a cover layer based on an oxide and/or nitride nitrided.

Claim 23 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in~~  
~~that it includes~~ which comprises a DLC-based overcoat.

Claim 24 (Currently Amended): The substrate as claimed in claim 23, ~~characterized~~  
~~in that~~ wherein the thickness of the overcoat is between 5 and 10 nm.

Claim 25 (Currently Amended): The substrate as claimed in claim 12, ~~characterized~~  
~~in that~~ wherein each of the functional layers is on top of a multilayer coating whose last layer  
is based on zinc oxide or on a mixed oxide of zinc and another metal.

Claim 26 (Currently Amended): The substrate as claimed in claim 12, ~~characterized~~  
~~in that~~ wherein each of the functional layers is beneath a multilayer coating whose first layer  
is based on zinc oxide or on a mixed oxide of zinc and another metal.

U.S. application serial no. 10/567,901  
Reply to Official Action of June 24, 2008

Claim 27 (Currently Amended): The substrate as claimed in claim 26, ~~characterized in that wherein~~ the layer based on zinc oxide or on a mixed oxide of zinc and another metal is substoichiometric in oxygen.

Claim 28 (Currently Amended): The substrate as claimed in claim 1, ~~characterized in that it which is~~ capable of undergoing a heat treatment.

Claim 29 (Currently Amended): The substrate as claimed in claim 12, ~~characterized in that wherein~~ the multilayer is as follows:

Zr: Si<sub>3</sub>N<sub>4</sub>/ZnO/Ti/Ag/ZnO/Zr:Si<sub>3</sub>N<sub>4</sub>/ZnO/Ti/Ag/ZnO/ Zr:Si<sub>3</sub>N<sub>4</sub> or  
Zr:Si<sub>3</sub>N<sub>4</sub>/ZnO/Ag/NiCr/ZnO/Zr:Si<sub>3</sub>N<sub>4</sub>  
optionally with thin layers of partially or completely oxidized metal placed on one of the faces of at least each of the silver layers.

Claim 30 (Currently Amended): ~~Glazing incorporating A glazing comprising~~ at least one substrate as claimed in claim 1, ~~characterized in that it wherein the glazing~~ is in the form of laminated glazing, a symmetrical glazing or multiple glazing.

Claims 31-32 (Canceled).

Claim 33 (Currently Amended): A plane or tubular, magnetron sputtering target for obtaining at least one layer comprising Si<sub>x</sub>Zr<sub>y</sub>Al<sub>z</sub> on a portion of the surface of a substrate as claimed in claim 1, ~~characterized in that wherein~~ the Si/Zr ratio at the target is slightly different from that of the layer, with a difference of 0.1 to 0.5.